

XXXIX. *Observations of the Sun's Eclipse, 16th of August, 1765, taken at Caën in Normandy. By Nathanael Pigott, Esquire, of Whitton, in Middlesex. Communicated by J. Bevis, M. D. F. R. S.*

Read July 9, 1767.

Tr. Time.

| h ' " |    |    |                                          | ' " " |    |    |
|-------|----|----|------------------------------------------|-------|----|----|
| At 3  | 57 | 28 | the seg. of the sun's illum. diam. meas. | 29    | 38 | 14 |
| 4     | 8  | 52 | the distance of the horns ditto          | 14    | 47 | 37 |
| 4     | 18 | 39 | the seg. of the illuminated diam. ditto  | 27    | 4  | 35 |
| 4     | 24 | 28 | the distance of the horns ditto          | 16    | 20 | 24 |
| 4     | 35 | 47 | the seg. of the illuminated diam. ditto  | 27    | 14 | 14 |
| 4     | 43 | 4  | the distance of the horns ditto          | 14    | 26 | 6  |
| 4     | 52 | 38 | the seg. of the illuminated diam. ditto  | 29    | 52 | 1  |
| 4     | 56 | 54 | the distance of the horns ditto          | 7     | 46 | 4  |

|                                                       |    | h  | '  | "  |    | '  | "  | ''' |                                           |
|-------------------------------------------------------|----|----|----|----|----|----|----|-----|-------------------------------------------|
| Sun's incl. diam. meas.                               | at | 3  | 19 | 38 |    | 31 | 45 | 11  | } the mean<br>' " '''                     |
| —— Ditto ——                                           | at | 3  | 22 | 10 |    | 31 | 42 | 58  |                                           |
| Sun's horiz. diam. aft.<br>the Eclipse                | }  | at | 5  | 31 | 33 |    | 31 | 41  |                                           |
| Sun's inclined diam.<br>meas. August 15 <sup>th</sup> |    | at | 3  | 53 | 37 |    | 31 | 43  | 42                                        |
|                                                       |    |    |    |    |    |    |    |     | } 31 43 20<br>of the Sun's<br>diam. meas. |

Eclipse

|                          | h  | '  | "  |                                                                                             | h   | '  | "  |         |
|--------------------------|----|----|----|---------------------------------------------------------------------------------------------|-----|----|----|---------|
| Eclipse beg. tr. time at | 3  | 48 | 16 | } hence the mid.<br>was at<br>and greatest<br>phase obs. at<br>whence the<br>ecl. incr. for | 4   | 24 | 36 |         |
| — end.                   | at | 5  | 0  |                                                                                             | 56½ | 4  | 18 | 39      |
| — mid.                   | at | 4  | 24 |                                                                                             | 36  |    |    |         |
| — dur.                   | at | 1  | 12 |                                                                                             | 40½ |    |    | 5 57 of |

time, in which the Sun's diam. illum. decreased  $36'' 14'''$ ; there-  
h ' " h ' "

fore from the Sun's diam. illuminated at  $4 \ 18 \ 39 = 27 \ 4 \ 35$   
take the decrease in  $+ \ 5 \ 57 = 0 \ 36 \ 14$

the diam. of the Sun at the middle  $4 \ 24 \ 36 = 26 \ 28 \ 21$

which taken from the mean diam. meas. }  $5 \ 14 \ 59$   
 $31' \ 43'' \ 20'''$  gives

the quantity of the eclipse, or segment of the diameter eclipsed, which is 1 digit and  $59', 15$  of a digit, or  $1 \frac{59}{60} = 2$  digits nearly. This eclipse was observed with an achromatic refractor of 6 feet, and a micrometer made by Dollond. The weather very fine.

The times, as computed from the Tables at the end of  
M. De la Lande's Astronomy.

|              | h | '  | "    |            | h | '  | "    | difference. |
|--------------|---|----|------|------------|---|----|------|-------------|
| Beginning at | 3 | 48 | 24,6 | observ. at | 3 | 48 | 16   | 0 8,6       |
| Middle       | 4 | 25 | 11,0 | —          | 4 | 24 | 36   | 0 35,0      |
| End          | 5 | 1  | 57,2 | —          | 5 | 0  | 56,5 | 1 0,7       |
| Duration     | 1 | 13 | 32,6 | —          | 1 | 12 | 40,5 | 0 52,1      |

Also the latitude of the Moon was, by observation,  $16''$  greater than the tables gave it.